JCB
THE JOURNAL OF CELL BIOLOGY
VOL. 187, NO. 1, OCTOBER 5, 2009

NEWS

In This Issue

2
- A MUG shot of spindle assembly
- Autophagy balances a Highwire act in synapse development
- Merkel cells bear the touch of epidermis
  B. Short

In Focus

3
- Myosins pull together—separately
  M. Leslie

People & Ideas

4
- Irina Conboy: Making the old feel young again
  K. Powell

RESEARCH ARTICLES

Reports

7 DNA replication times the cell cycle and contributes to the mid-blastula transition in *Drosophila* embryos
Mark L. McCleland, Antony W. Shermoen, and Patrick H. O'Farrell

15 Tim–Tipin dysfunction creates an indispensible reliance on the ATR–Chk1 pathway for continued DNA synthesis
Kevin D. Smith, Michael A. Fu, and Eric J. Brown

25 INTS3 controls the hSSB1-mediated DNA damage response
Jeffrey R. Skaar, Derek J. Richard, Anita Saraf, Alfredo Toschi, Emma Bolderson, Laurence Florens, Michael P. Washburn, Kum Kum Khanna, and Michele Pagano

33 An eIF4E-binding protein regulates katanin protein levels in *C. elegans* embryos
Wei Li, Leah R. DeBella, Tugba Guven-Ozkan, Rueyling Lin, and Lesilee S. Rose

43 Relative contributions of chromatin and kinetochores to mitotic spindle assembly
Christopher B. O'Connell, Jadranka Lončarek, Petr Kaláb, and Alexey Khodjakov

53 Coupled myosin VI motors facilitate unidirectional movement on an F-actin network
Sivaraj Sivaramakrishnan and James A. Spudich

61 Glyburide inhibits the Cryopyrin/Nalp3 inflammasome
Mohamed Lamkanfi, James L. Mueller, Alberto C. Vitari, Shahram Misaghi, Anna Fedorova, Kurt Deshayes, Wyne P. Lee, Hal M. Hoffman, and Vishva M. Dixit

71 Autophagy promotes synapse development in *Drosophila*
Wei Shen and Barry Ganetzky

81 Intraflagellar transport particle size scales inversely with flagellar length: revisiting the balance-point length control model
Benjamin D. Engel, William B. Ludington, and Wallace F. Marshall

91 Epidermal progenitors give rise to Merkel cells during embryonic development and adult homeostasis
Alexandra Van Keymeulen, Guilhem Mascre, Khalil Kass Youseff, Itamar Harel, Cindy Michaux, Natalie De Geest, Caroline Szpalski, Younes Achouri, Wilhelm Bloch, Bassem A. Hassan, and Cédric Blanpain

Articles with related stories in the IN THIS ISSUE section have page numbers in RED; articles related to IN FOCUS have page numbers in BLUE.

On the cover

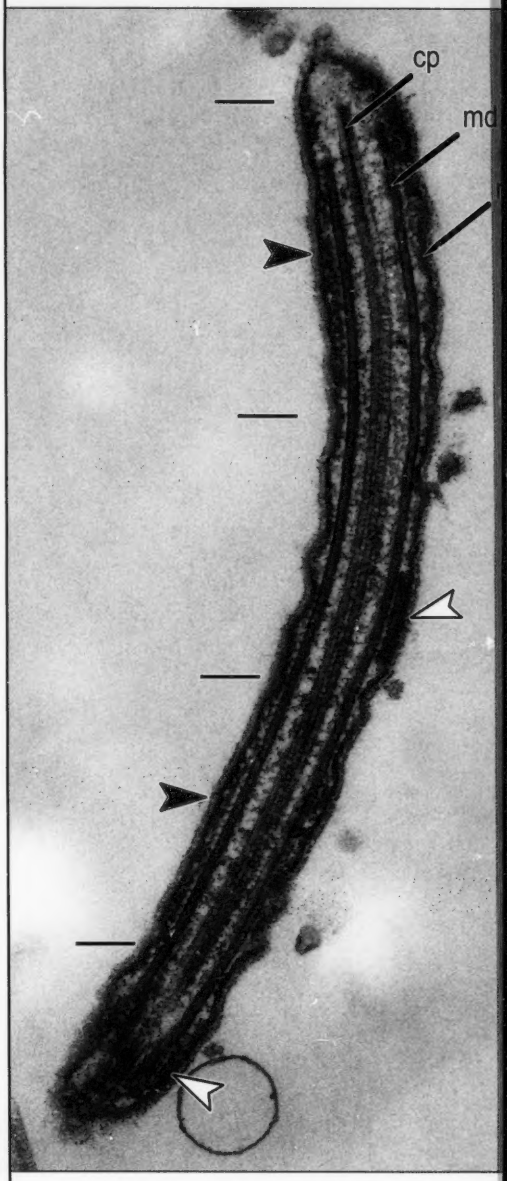
In mouse whiskers, as well as other regions of the skin, Merkel cells (red) transmit mechanical stimuli to sensory neurons (green). Van Keymeulen et al. demonstrate that Merkel cells develop from epidermal, rather than neural crest progenitors.
See page 91.

Articles

101 Molecular mechanisms that enhance synapse stability despite persistent disruption of the spectrin/ankyrin/microtubule cytoskeleton
Catherine M. Massaro, Jan Pielage, and Graeme W. Davis

119 Cdc42 antagonizes Rho1 activity at adherens junctions to limit epithelial cell apical tension
Stephen J. Warner and Gregory D. Longmore

135 Electron-tomographic analysis of intraflagellar transport particle trains in situ
Gaia Pigino, Stefan Geimer, Salvatore Lanzavecchia, Eugenio Paccagnini, Francesca Cantele, Dennis R. Diener, Joel L. Rosenbaum, and Pietro Lupetti



Trains of protein particles shuttle back and forth to assemble and maintain flagella. Pigino et al. reveal that trains headed to flagella tips (black arrowheads) are longer than those returning to the organelle's base (white arrowheads).
See page 135.

JCB
THE JOURNAL OF CELL BIOLOGY
VOL. 187, NO. 2, OCTOBER 19, 2009

NEWS

In This Issue

150 • Walking a fine caspase line
• Securing the next generation's peroxisomes
• PIKfyve promotes neuron self-preservation
K. Powell

In Focus

151 • The different ties that bind
B. Short

People & Ideas

152 • Senthil Muthuswamy: A new road map for cancer
C. Sedwick

Editorials

155 *JCB* meeting: Cell Biology of Disease
T. Misteli

REVIEWS

Comments

157 Keratins and protein synthesis: the plot thickens
Juliane C. Kellner and Pierre A. Coulombe

161 It takes two to tango to the melanosome
Aparna Lakkaraju, Jose Maria Carvajal-Gonzalez, and Enrique Rodriguez-Boulan

RESEARCH ARTICLES

Reports

165 Differential regulation of telomere and centromere cohesion by the Scc3 homologues SA1 and SA2, respectively, in human cells
Silvia Canudas and Susan Smith

175 Keratins regulate protein biosynthesis through localization of GLUT1 and -3 upstream of AMP kinase and Raptor
Preethi Vijayaraj, Cornelia Kröger, Ursula Reuter, Reinhard Windoffer, Rudolf E. Leube, and Thomas M. Magin

Articles

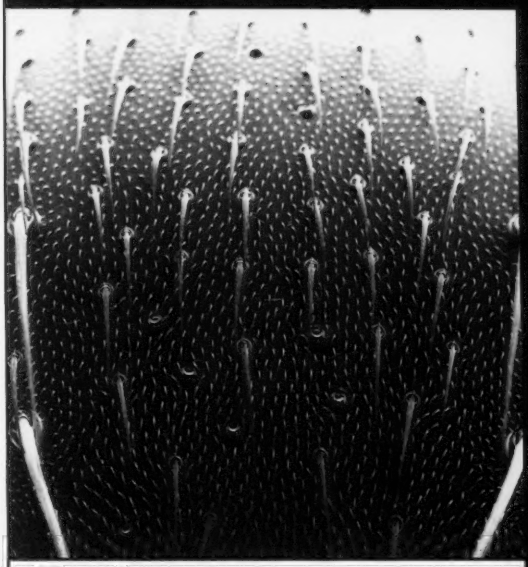
185 Cohesin SMC1β protects telomeres in meiocytes
Caroline Adelfalk, Johannes Janschek, Ekaterina Revenkova, Cornelia Blei, Bodo Liebe, Eva Göb, Manfred Alsheimer, Ricardo Benavente, Esther de Boer, Ivana Novak, Christer Höög, Harry Scherthan, and Rolf Jessberger

201 Ubiquilin and p97/VCP bind erasin, forming a complex involved in ERAD
Precious J. Lim, Rebecca Danner, Jing Liang, Howard Doong, Christine Harman, Deepa Srinivasan, Cara Rothenberg, Hongmin Wang, Yihong Ye, Shengyun Fang, and Mervyn J. Monteiro

219 Temporal regulation of *Drosophila* IAP1 determines caspase functions in sensory organ development
Akiko Koto, Erina Kuranaga, and Masayuki Miura

233 Pex3 peroxisome biogenesis proteins function in peroxisome inheritance as class V myosin receptors
Jinlan Chang, Fred D. Mast, Andrei Fagarasanu, Dorian A. Rachubinski, Gary A. Eitzen, Joel B. Dacks, and Richard A. Rachubinski

Articles with related stories in the IN THIS ISSUE section have page numbers in RED; articles related to IN FOCUS have page numbers in BLUE; articles with COMMENTS have page numbers in GREEN.



On the cover

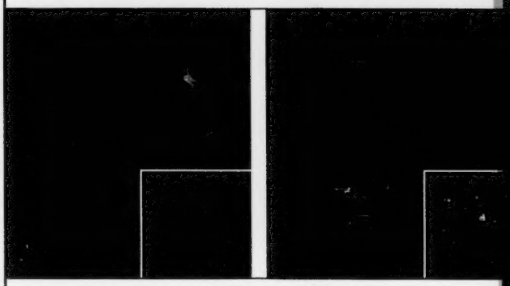
Temporal changes in the levels of an inhibitor called DIAP1 allow caspases to promote the elongation of sensory organ shaft cells without inducing their death. Inappropriate degradation of DIAP1 causes cell death and a loss of sensory bristles.
See page 219.

247 AP-1 and KIF13A coordinate endosomal sorting and positioning during melanosome biogenesis
Cédric Delevoye, Ilse Hurbain, Danièle Tenza, Jean-Baptiste Sibarita, Stéphanie Uzan-Gafsou, Hiroshi Ohno, Willie J.C. Geerts, Arie J. Verkleij, Jean Salamero, Michael S. Marks, and Graça Raposo

265 Spred2 interaction with the late endosomal protein NBR1 down-regulates fibroblast growth factor receptor signaling
Faraz K. Mardakheh, Mona Yekezare, Laura M. Machesky, and John K. Heath

279 PIKfyve regulates $Ca_V1.2$ degradation and prevents excitotoxic cell death
Fuminori Tsuruta, Eric M. Green, Matthieu Rousset, and Ricardo E. Dolmetsch

295 Postsynaptic regulation of synaptic plasticity by synaptotagmin 4 requires both C2 domains
Cynthia F. Barber, Ramon A. Jorquera, Jan E. Melom, and J. Troy Littleton



Mardakheh et al. reveal that Spred2 interacts with an endosomal protein called NBR1 to down-regulate FGF signaling by sending the FGF receptor (green) to its destruction in the lysosomes (red).
See page 265.

JCB
THE JOURNAL OF CELL BIOLOGY
VOL. 187, NO. 3, NOVEMBER 2, 2009

NEWS

In This Issue

314 • γ-TuRC gives microtubules pause for thought
• Raf-1 sheds then spreads its inhibitions
• Chemosensitivity depends on the dependency
B. Short

In Focus

315 • Not the average view of adipogenesis
B. Short

People & Ideas

316 • Irving Weissman: Working for regenerative medicine
N. LeBrasseur

REVIEWS

Reviews

319 The ubiquitin landscape at DNA double-strand breaks
Troy E. Messick and Roger A. Greenberg

RESEARCH ARTICLES

Reports

327 γ-Tubulin ring complexes regulate microtubule plus end dynamics
Anaïs Bouissou, Christel Vérollet, Aureliana Sousa, Paula Sampaio, Michel Wright, Claudio E. Sunkel, Andreas Merdes, and Brigitte Raynaud-Messina

335 From autoinhibition to inhibition in trans: the Raf-1 regulatory domain inhibits Rok-α kinase activity
Théodora Niault, Izabela Sobczak, Katrin Meissl, Gregory Weitsman, Daniela Piazzolla, Gabriele Maurer, Florian Kern, Karin Ehrenreiter, Matthias Hamerl, Ismail Moarefi, Thomas Leung, Oliviero Carugo, Tony Ng, and Manuela Baccarini

343 Enhancement of Notch receptor maturation and signaling sensitivity by Cripto-1
Kazuhide Watanabe, Tadahiro Nagaoka, Joseph M. Lee, Caterina Bianco, Monica Gonzales, Nadia P. Castro, Maria Cristina Rangel, Kei Sakamoto, Youping Sun, Robert Callahan, and David S. Salomon

355 Ana3 is a conserved protein required for the structural integrity of centrioles and basal bodies
Naomi R. Stevens, Jeroen Dobbelaere, Alan Wainman, Fanni Gergely, and Jordan W. Raff

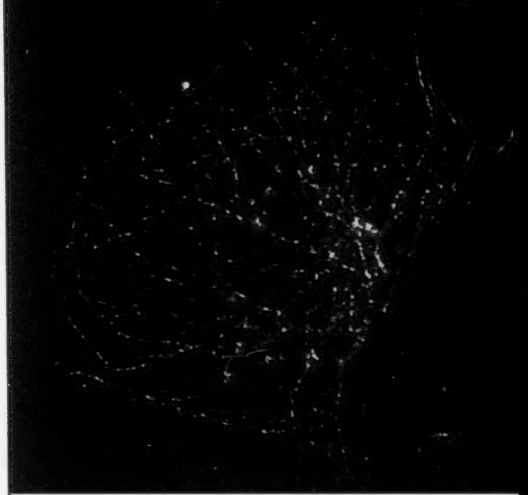
365 Lateral transport of Smoothened from the plasma membrane to the membrane of the cilium
Ljiljana Milenkovic, Matthew P. Scott, and Rajat Rohatgi

375 Heterogeneity in the physiological states and pharmacological responses of differentiating 3T3-L1 preadipocytes
Lit-Hsin Loo, Hai-Jui Lin, Dinesh K. Singh, Kathleen M. Lyons, Steven J. Altschuler, and Lani F. Wu

Articles

385 Mammalian Rif1 contributes to replication stress survival and homology-directed repair
Sara B.C. Buonomo, Yipin Wu, David Ferguson, and Titia de Lange

Articles with related stories in the IN THIS ISSUE section have page numbers in RED; articles related to IN FOCUS have page numbers in BLUE.



On the cover

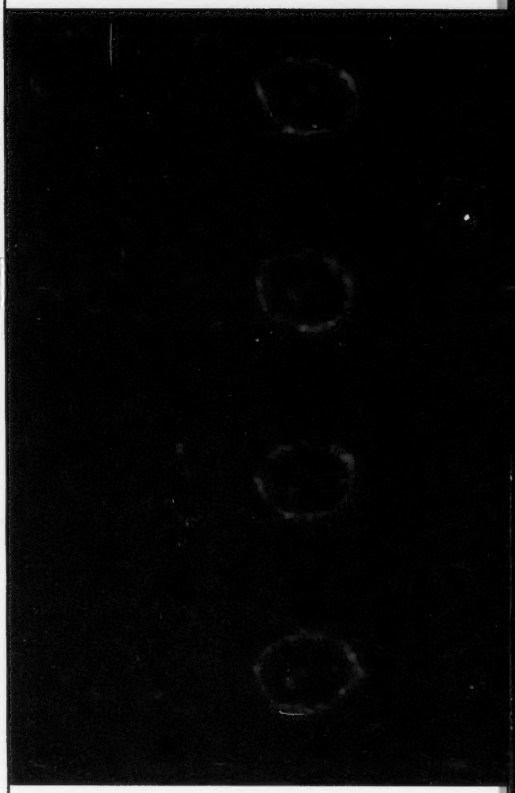
In addition to nucleating microtubules (red), the γ-tubulin ring complex (green) binds along their length, acting as a stabilizing factor to control plus-end dynamics.

See page 327.

399 Ase1/Prc1-dependent spindle elongation corrects merotely during anaphase in fission yeast
Thibault Courtheoux, Guillaume Gay, Yannick Gachet, and Sylvie Tournier

413 Membrane proteins Bqt3 and -4 anchor telomeres to the nuclear envelope to ensure chromosomal bouquet formation
Yuji Chikashige, Miho Yamane, Kasumi Okamasa, Chihiro Tsutsumi, Tomoko Kojidani, Mamiko Sato, Tokuko Haraguchi, and Yasushi Hiraoka

429 MCL-1–dependent leukemia cells are more sensitive to chemotherapy than BCL-2–dependent counterparts
Joslyn K. Brunelle, Jeremy Ryan, Derek Yecies, Joseph T. Opferman, and Anthony Letai



Chikashige et al. identify two new proteins required to cluster telomeres into "bouquets" during meiosis. In fission yeast lacking Bqt4, telomeres (magenta) can't attach to the nuclear envelope (green).
See page 413.

JCB
THE JOURNAL OF CELL BIOLOGY
VOL. 187, NO. 4, NOVEMBER 16, 2009

NEWS

In This Issue

444 • Cohesin pathway makes the necessary arrangements
• Germ cells decide for themselves
• Sizing up the ER stress response
B. Short

In Focus

445 • Adhering to the message
B. Short

People & Ideas

446 • Michael Buszczak: Tracking the big game in stem cell identity
C. Sedwick

REVIEWS

Meeting Reviews

449 Journeys through the Golgi—taking stock in a new era
Scott Emr, Benjamin S. Glick, Adam D. Linstedt, Jennifer Lippincott-Schwartz, Alberto Luini, Vivek Malhotra, Brad J. Marsh, Akihiko Nakano, Suzanne R. Pfeffer, Catherine Rabouille, James E. Rothman, Graham Warren, and Felix T. Wieland

RESEARCH ARTICLES

Reports

455 Cohesinopathy mutations disrupt the subnuclear organization of chromatin
Scarlett Gard, William Light, Bo Xiong, Tania Bose, Adrian J. McNairn, Bethany Harris, Brian Fleharty, Chris Seidel, Jason H. Brickner, and Jennifer L. Gerton

463 A dual function for Pex3p in peroxisome formation and inheritance
Joanne M. Munck, Alison M. Motley, James M. Nuttall, and Ewald H. Hettema

473 *Drosophila* glypicans regulate the germline stem cell niche
Yoshiki Hayashi, Satoru Kobayashi, and Hiroshi Nakato

Articles

481 Quantitative analysis of chromatin compaction in living cells using FLIM–FRET
David Llères, John James, Sam Swift, David G. Norman, and Angus I. Lamond

497 Lte1 contributes to Bfa1 localization rather than stimulating nucleotide exchange by Tem1
Marco Geymonat, Adonis Spanos, Geoffroy de Bettignies, and Steven G. Sedgwick

513 Capacity for stochastic self-renewal and differentiation in mammalian spermatogonial stem cells
Zhuoru Wu, Katherine Luby-Phelps, Abhijit Bugde, Laura A. Molyneux, Bray Denard, Wen-Hong Li, Gürol M. Süel, and David L. Garbers

525 Membrane expansion alleviates endoplasmic reticulum stress independently of the unfolded protein response
Sebastian Schuck, William A. Prinz, Kurt S. Thorn, Christiane Voss, and Peter Walter

537 Adenovirus RID-α activates an autonomous cholesterol regulatory mechanism that rescues defects linked to Niemann-Pick disease type C
Nicholas L. Cianciola and Cathleen R. Carlin

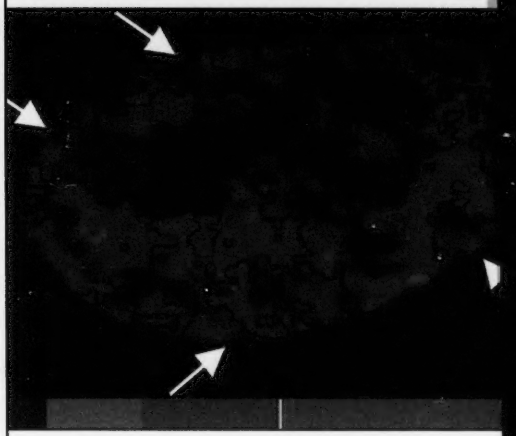
Articles with related stories in the IN THIS ISSUE section have page numbers in RED; articles related to IN FOCUS have page numbers in BLUE.

On the cover

Molecular electron tomography reveals that the extracellular domain of the homophilic cell adhesion molecule CEACAM1 adopts a variety of conformations. Adhesion-induced rearrangements in the protein's self-association alters downstream, cytoplasmic signaling pathways.
See pages 553 and 569.

553 The CEACAM1 N-terminal Ig domain mediates cis- and trans-binding and is essential for allosteric rearrangements of CEACAM1 microclusters
Esther Klaile, Olga Vorontsova, Kristmundur Sigmundsson, Mario M. Müller, Bernhard B. Singer, Lars-Göran Öfverstedt, Stina Svensson, Ulf Skoglund, and Björn Öbrink

569 Homophilic adhesion and CEACAM1-S regulate dimerization of CEACAM1-L and recruitment of SHP-2 and c-Src
Mario M. Müller, Esther Klaile, Olga Vorontsova, Bernhard B. Singer, and Björn Öbrink



Llères et al. use a FRET-based assay to measure chromatin condensation in live cells. Different levels of FRET efficiency are pseudo-colored to distinguish regions of the nucleus with distinct degrees of compaction—the arrows indicate highly condensed chromatin (red) at the nuclear periphery.
See page 481.

JCB
THE JOURNAL OF CELL BIOLOGY
VOL. 187, NO. 5, NOVEMBER 30, 2009

NEWS

In This Issue

584 • Aki1 helps centrioles stay tight
• No copying allowed
• Rules of phagocytic attraction
M. Leslie

In Focus

585 • Focal adhesions come unstuck
M. Leslie

People & Ideas

586 • Frauke Melchior: How SUMO wrestles other proteins
C. Sedwick

REVIEWS

Reviews

589 Eukaryotic systems broaden the scope of synthetic biology
Karmella A. Haynes and Pamela A. Silver

RESEARCH ARTICLES

Reports

597 Separating the spindle, checkpoint, and timer functions of BubR1
Zohra Rahmani, Mary E. Gagou, Christophe Lefebvre, Doruk Emre, and Roger E. Karess

607 Centrosomal Aki1 and cohesin function in separase-regulated centriole disengagement
Akito Nakamura, Hiroyuki Arai, and Naoya Fujita

615 Kinesin 9 family members perform separate functions in the trypanosome flagellum
Raphaël Demonchy, Thierry Blisnick, Caroline Deprez, Géraldine Toutirais, Céline Loussert, William Marande, Philippe Grellier, Philippe Bastin, and Linda Kohl

Articles

623 Decreased replication origin activity in temporal transition regions
Zeqiang Guan, Christina M. Hughes, Settapong Kosiyatrakul, Paolo Norio, Ranjan Sen, Steven Fiering, C. David Allis, Eric E. Bouhassira, and Carl L. Schildkraut

637 INCENP–aurora B interactions modulate kinase activity and chromosome passenger complex localization
Zhenjie Xu, Hiromi Ogawa, Paola Vagnarelli, Jan H. Bergmann, Damien F. Hudson, Sandrine Ruchaud, Tatsuo Fukagawa, William C. Earnshaw, and Kumiko Samejima

655 Ube2j2 ubiquitinates hydroxylated amino acids on ER-associated degradation substrates
Xiaoli Wang, Roger A. Herr, Martijn Rabelink, Rob C. Hoeben, Emmanuel J.H.J. Wiertz, and Ted H. Hansen

669 The glycosaminoglycan-binding domain of PRELP acts as a cell type–specific NF-κB inhibitor that impairs osteoclastogenesis
Nadia Rucci, Anna Rufo, Marina Alamanou, Mattia Capulli, Andrea Del Fattore, Emma Åhrman, Daria Capece, Valeria Iansante, Francesca Zazzeroni, Edoardo Alesse, Dick Heinegård, and Anna Teti

Articles with related stories in the IN THIS ISSUE section have page numbers in RED; articles related to IN FOCUS have page numbers in BLUE.

On the cover

TIRF microscopy reveals that clathrin (blue) and its adaptor protein Dab2 (green) colocalize at focal adhesions (red), which are disassembled by the endocytosis of integrins.
See page 733.

685 δ-EF1 is a negative regulator of *Ihh* in the developing growth plate
Ellen Bellon, Frank P. Luyten, and Przemko Tylzanowski

701 An electrostatic switch displaces phosphatidylinositol phosphate kinases from the membrane during phagocytosis
Gregory D. Fairn, Koji Ogata, Roberto J. Botelho, Philip D. Stahl, Richard A. Anderson, Pietro De Camilli, Tobias Meyer, Shoshana Wodak, and Sergio Grinstein

715 New PI(4,5)P_2- and membrane proximal integrin–binding motifs in the talin head control β3-integrin clustering
Frédéric Saltel, Eva Mortier, Vesa P. Hytönen, Marie-Claude Jacquier, Pascale Zimmermann, Viola Vogel, Wei Liu, and Bernhard Wehrle-Haller

733 Clathrin mediates integrin endocytosis for focal adhesion disassembly in migrating cells
Ellen J. Ezratty, Claire Bertaux, Eugene E. Marcantonio, and Gregg G. Gundersen

Corrections

749 Cohesinopathy mutations disrupt the subnuclear organization of chromatin
Scarlett Gard, William Light, Bo Xiong, Tania Bose, Adrian J. McNairn, Bethany Harris, Brian Fleharty, Chris Seidel, Jason H. Brickner, and Jennifer L. Gerton

Trypanosomes lacking the kinesin motor KIF9B grow abnormal flagella. Rather than running parallel to the axoneme (red), the paraflagellar rod (green) is assembled in discontinuous patches. **See page 615.**

JCB
THE JOURNAL OF CELL BIOLOGY
VOL. 167 NO. 5, DECEMBER 13, 2004

NEWS

In This Issue

752 • Genes make their position clear
• VCP takes out the trash
• Membranes enter transfer negotiations
B. Short

In Focus

753 • Sculpting the dynein regulatory complex
Aimee deCathelineau

People & Ideas

754 • Tarun Kapoor: In the right position to study chromosomes
C. Sedwick

REVIEWS

Comments

757 Cytokinetic astralogy
Julie C. Canman

Reviews

761 Non–cell autonomous toxicity in neurodegenerative disorders: ALS and beyond
Hristelina Ilieva, Magdalini Polymenidou, and Don W. Cleveland

RESEARCH ARTICLES

Reports

773 Overall Cdk activity modulates the DNA damage response in mammalian cells
Antonio Cerqueira, David Santamaría, Bárbara Martínez-Pastor, Miriam Cuadrado, Oscar Fernández-Capetillo, and Mariano Barbacid

781 Visualizing histone modifications in living cells: spatiotemporal dynamics of H3 phosphorylation during interphase
Yoko Hayashi-Takanaka, Kazuo Yamagata, Naohito Nozaki, and Hiroshi Kimura

791 The Cul3–KLHL21 E3 ubiquitin ligase targets Aurora B to midzone microtubules in anaphase and is required for cytokinesis
Sarah Maerki, Michael H. Olma, Titu Staubli, Patrick Steigemann, Daniel W. Gerlich, Manfredo Quadroni, Izabela Sumara, and Matthias Peter

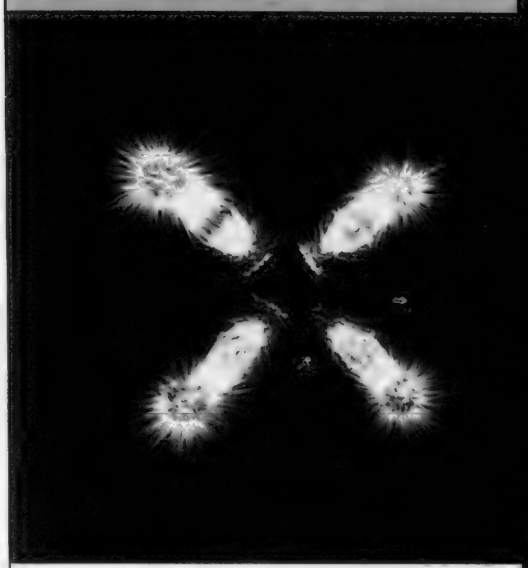
Articles

801 Disease-specific gene repositioning in breast cancer
Karen J. Meaburn, Prabhakar R. Gudla, Sameena Khan, Stephen J. Lockett, and Tom Misteli

813 ISWI is a RanGTP-dependent MAP required for chromosome segregation
Hideki Yokoyama, Sofia Rybina, Rachel Santarella-Mellwig, Iain W. Mattaj, and Eric Karsenti

831 Action at a distance during cytokinesis
George von Dassow, Koen J.C. Verbrugghe, Ann L. Miller, Jenny R. Sider, and William M. Bement

Articles with related stories in the IN THIS ISSUE section have page numbers in RED; articles related to IN FOCUS have page numbers in BLUE; articles with COMMENTS have page numbers in GREEN.



On the cover

The mitotic spindle (orange) segregates DNA (blue) in the dividing cells of a sand dollar embryo. von Dassow et al. demonstrate that spindle microtubules don't need to touch the cell cortex for the cleavage furrow to assemble in the right place.

See page 831.

847 Dual roles for the *Drosophila* PI 4-kinase Four wheel drive in localizing Rab11 during cytokinesis
Gordon Polevoy, Ho-Chun Wei, Raymond Wong, Zsofia Szentpetery, Yeun Ju Kim, Philip Goldbach, Sarah K. Steinbach, Tamas Balla, and Julie A. Brill

859 Muscle inactivation of mTOR causes metabolic and dystrophin defects leading to severe myopathy
Valérie Risson, Laetitia Mazelin, Mila Roceri, Hervé Sanchez, Vincent Moncollin, Claudine Corneloup, Hélène Richard-Bulteau, Alban Vignaud, Dominique Baas, Aurélia Defour, Damien Freyssenet, Jean-François Tanti, Yannick Le-Marchand-Brustel, Bernard Ferrier, Agnès Conjard-Duplany, Klaas Romanino, Stéphanie Bauché, Daniel Hantaï, Matthias Mueller, Sara C. Kozma, George Thomas, Markus A. Rüegg, Arnaud Ferry, Mario Pende, Xavier Bigard, Nathalie Koulmann, Laurent Schaeffer, and Yann-Gaël Gangloff

875 Valosin-containing protein (VCP) is required for autophagy and is disrupted in VCP disease
Jeong-Sun Ju, Rodrigo A. Fuentealba, Sara E. Miller, Erin Jackson, David Piwnica-Worms, Robert H. Baloh, and Conrad C. Weihl

889 Lipid-regulated sterol transfer between closely apposed membranes by oxysterol-binding protein homologues
Timothy A. Schulz, Mal-Gi Choi, Sumana Raychaudhuri, Jason A. Mears, Rodolfo Ghirlando, Jenny E. Hinshaw, and William A. Prinz

905 Basal body stability and ciliogenesis requires the conserved component Poc1
Chad G. Pearson, Daniel P.S. Osborn, Thomas H. Giddings Jr., Philip L. Beales, and Mark Winey

921 The dynein regulatory complex is the nexin link and a major regulatory node in cilia and flagella
Thomas Heuser, Milen Raytchev, Jeremy Krell, Mary E. Porter, and Daniela Nicastro

Poc1 is a protein required for the assembly and maintenance of cilia and basal bodies (green) in several organisms, including the protozoan *Tetrahymena thermophila*.
See page 905.

JCB
THE JOURNAL OF CELL BIOLOGY
VOL. 187, NO. 7, DECEMBER 28, 2009

NEWS

In This Issue

936 • Opposing motors take the strain
• IKK cuts both ways in Huntington's disease
• BBS proteins run an export business
B. Short

In Focus

937 • Mitochondrial proteases strike the right balance
B. Short

People & Ideas

938 • Elaine Fuchs: A love for science that's more than skin deep
B. Short

REVIEWS

Comments

941 The p38 MAPK family, a pushmi-pullyu of skeletal muscle differentiation
Andrew B. Lassar

Reviews

945 Role of A-type lamins in signaling, transcription, and chromatin organization
Vicente Andrés and José M. González

RESEARCH ARTICLES

Reports

959 Inducible proteolytic inactivation of OPA1 mediated by the OMA1 protease in mammalian cells
Brian Head, Lorena Griparic, Mandana Amiri, Shilpa Gandre-Babbe, and Alexander M. van der Bliek

967 PtdIns4*P* recognition by Vps74/GOLPH3 links PtdIns 4-kinase signaling to retrograde Golgi trafficking
Christopher S. Wood, Karl R. Schmitz, Nicholas J. Bessman, Thanuja Gangi Setty, Kathryn M. Ferguson, and Christopher G. Burd

Articles

977 Autophosphorylation at serine 1981 stabilizes ATM at DNA damage sites
Sairei So, Anthony J. Davis, and David J. Chen

991 p38-γ–dependent gene silencing restricts entry into the myogenic differentiation program
Mark A. Gillespie, Fabien Le Grand, Anthony Scimè, Shihuan Kuang, Julia von Maltzahn, Vanessa Seale, Ana Cuenda, Jeffrey A. Ranish, and Michael A. Rudnicki

1007 A novel intermembrane space–targeting signal docks cysteines onto Mia40 during mitochondrial oxidative folding
Dionisia P. Sideris, Nikos Petrakis, Nitsa Katrakili, Despina Mikropoulou, Angelo Gallo, Simone Ciofi-Baffoni, Lucia Banci, Ivano Bertini, and Kostas Tokatlidis

1023 Regulation of OPA1 processing and mitochondrial fusion by *m*-AAA protease isoenzymes and OMA1
Sarah Ehses, Ines Raschke, Giuseppe Mancuso, Andrea Bernacchia, Stefan Geimer, Daniel Tondera, Jean-Claude Martinou, Benedikt Westermann, Elena I. Rugarli, and Thomas Langer

Articles with related stories in the IN THIS ISSUE section have page numbers in RED; articles related to IN FOCUS have page numbers in BLUE; articles with COMMENTS have page numbers in GREEN.

On the cover

The BBSome (green)—a complex of proteins mutated in human disease—travels along a flagella axoneme on an intraflagellar transport particle (red). Lechtreck et al. suggest that the BBSome functions as a cargo adapter, removing signaling proteins that would otherwise disrupt cilia function.
See page 1117.

1037 Cellular IAPs inhibit a cryptic CD95-induced cell death by limiting RIP1 kinase recruitment
Peter Geserick, Mike Hupe, Maryline Moulin, W. Wei-Lynn Wong, Maria Feoktistova, Beate Kellert, Harald Gollnick, John Silke, and Martin Leverkus

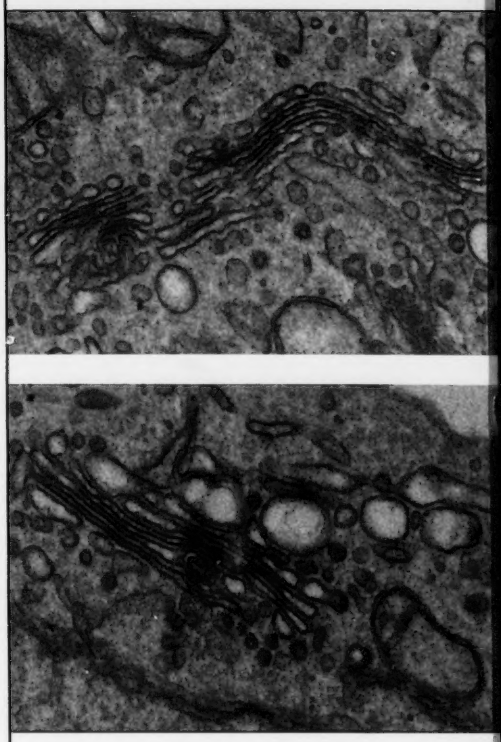
1055 Actin remodeling by ADF/cofilin is required for cargo sorting at the trans-Golgi network
Julia von Blume, Juan M. Duran, Elena Forlanelli, Anne-Marie Alleaume, Mikhail Egorov, Roman Polishchuk, Henrik Molina, and Vivek Malhotra

1071 Opposite-polarity motors activate one another to trigger cargo transport in live cells
Shabeen Ally, Adam G. Larson, Kari Barlan, Sarah E. Rice, and Vladimir I. Gelfand

1083 IKK phosphorylates Huntingtin and targets it for degradation by the proteasome and lysosome
Leslie Michels Thompson, Charity T. Aiken, Linda S. Kaltenbach, Namita Agrawal, Katalin Illes, Ali Khoshnan, Marta Martinez-Vincente, Montserrat Arrasate, Jacqueline Gire O'Rourke, Hasan Khashwji, Tamas Lukacsovich, Ya-Zhen Zhu, Alice L. Lau, Ashish Massey, Michael R. Hayden, Scott O. Zeitlin, Steven Finkbeiner, Kim N. Green, Frank M. LaFerla, Gillian Bates, Lan Huang, Paul H. Patterson, Donald C. Lo, Ana Maria Cuervo, J. Lawrence Marsh, and Joan S. Steffan

1101 The binding of NCAM to FGFR1 induces a specific cellular response mediated by receptor trafficking
Chiara Francavilla, Paola Cattaneo, Vladimir Berezin, Elisabeth Bock, Diletta Ami, Ario de Marco, Gerhard Christofori, and Ugo Cavallaro

1117 The *Chlamydomonas reinhardtii* BBSome is an IFT cargo required for export of specific signaling proteins from flagella
Karl-Ferdinand Lechtreck, Eric C. Johnson, Tsuyoshi Sakai, Deborah Cochran, Bryan A. Ballif, John Rush, Gregory J. Pazour, Mitsuo Ikebe, and George B. Witman



Compared to control cells (top), the trans-Golgi network is swollen in cells lacking the actin-severing proteins ADF and cofilin1 (bottom). von Blume et al. reveal that actin remodeling by these proteins is required to sort secretory cargo.
See page 1055.